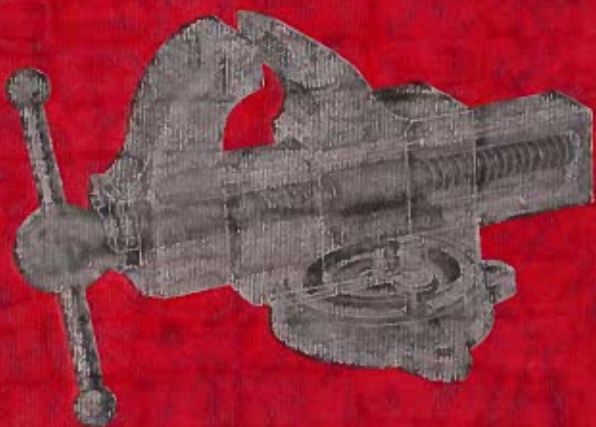


Handbook On VISES



Their Care, Use
and Selection



MAR 30 1937

Handbook On VISES



**Their Care, Use
and Selection**



Published by

THE CHARLES PARKER COMPANY

Established 1832

MERIDEN, CONNECTICUT

"Makers of the famous PARKER VISE"

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Memorandum

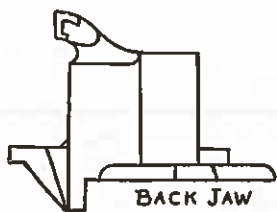
Introduction

THE Bench Vise is probably one of the oldest machine tools known to man, for it is obvious that as soon as man started fashioning and shaping weapons and implements, it was necessary to develop some device for holding them. As time went on and the art of working metals developed, the Bench Vise has gradually been improved up to its present form.

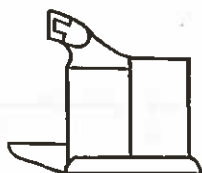
The first company to manufacture the Bench Vise in the United States was The Charles Parker Company of Meriden, Connecticut, who began their manufacture in 1832. Since that time these vises have been constantly improved and developed, until we have the present Parker Vise with its high standard of performance and long-wearing qualities. Through these years many improvements have been made, due to the developments in foundry practice and steel treating. Our engineers and metallurgists are constantly on the alert for improvements that may be incorporated in these vises.

Essential Vise Parts

The essential parts of any Bench Vise are the back jaw, which is made both in the stationary and swivel bases, the sliding jaw, the screw, the nut and the steel jaw faces.



BACK JAW
(STATIONARY BASE)



BACK JAW
(SWIVEL BASE)



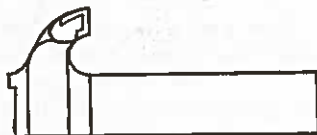
EXPANSION
RING



SWIVEL
BASE



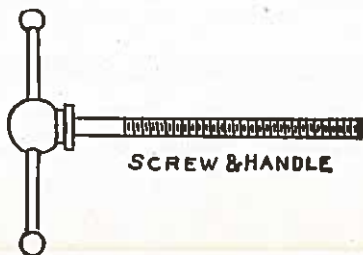
NUT
&
NUTPIN



SLIDE



STEEL
JAW &
PIN



SCREW & HANDLE

How to Use a Vise

*Fig. 1. Vise and bench should be fast friends. Make the vise fast to the bench **BY USING BOLTS** instead of lag screws. This is the first step in giving it a square deal.*



Here's to industry's bull dog—the vise—the most used and the most abused tool in the shop.

Why not give it a square deal? A good vise costs money and a poor one costs more.

Like every other tool in your plant, however, it is not the first cost that counts, but the amount of service that is given before replacement is necessary.



How to Use a Vise

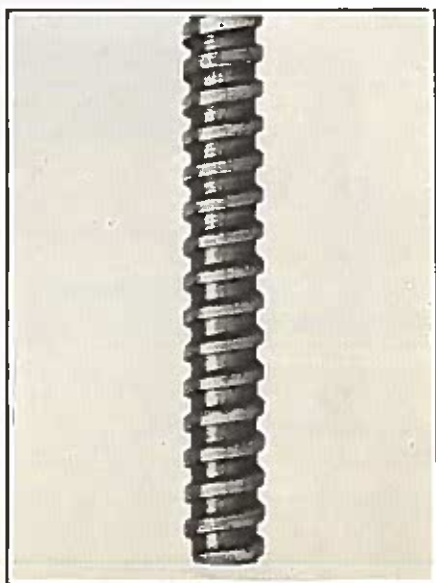
(Cont.)

Fig. 2. A good vise is a careful and accurately made tool. Run out the screw and oil it thoroughly not only when it is first installed but at regular intervals afterward.

You can easily double the life of your vise equipment by treating it properly.

Vises are built to stand lots of hard work.

Fig. 3. Neglect of lubrication causes unnecessary depreciation. Here is what happens to a vise screw that is not oiled. This might be entitled "How dry I am."



How to Use a Vise (Cont.)

Fig. 4. One good way to ruin a vise. If longer handles were needed they would be made so. Throw away the pipe extension and save a good vise from the scrap heap.



But no tool, even one as ruggedly and strongly built as a good modern vise, will have as long or as useful a life when abused as when properly treated.

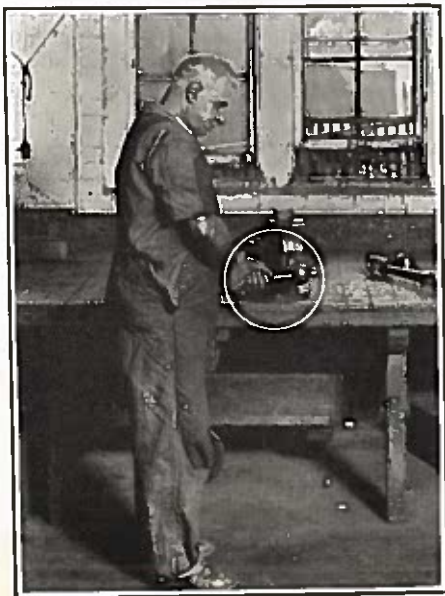


Fig. 5. Screw and lever make a powerful combination. Anything that should be held in a vise can be clamped securely by using the handle properly as shown



How to Use a Vise (Cont.)

Fig. 6. Striking the vise handle with a hammer is bad business. It shortens the life of this useful tool and thus increases shop "overhead."

While it is true that a single vise does not cost a great sum of money, just multiply its cost by the total number of vises in a plant and see what a respectable investment is represented.



Fig. 7. Another good way to tighten the vise is by using this double leverage. Keep the work as nearly in the middle of the jaw as possible.

How to Use a Vise (Cont.)

Fig. 8. Don't hammer or cut metal on the vise slide. Anvils and pounding blocks are cheaper than vises.



Always think of the vise as a carefully made machine tool. Its parts are machined to close measurements.



Fig. 9. If you must cut metal in a vise do it this way. Then you won't chip or mark the finished surface of the slide. Do your cutting and hammering against the solid back jaw.



*How to Use
a Vise
(Cont.)*

Fig. 10. One of the very bad things you can do to a vise is to use it for bending pipe or bars. If you don't know a better and cheaper way to bend than this, write and ask us to tell you how.

It is an accurate tool when you put it to work, and how long it will remain in that condition depends largely upon the user.



Fig. 11. It nearly hit him on the toe. The vise jaws were worn smooth and hence the work slipped out of them. This might have meant a week in the hospital, or a blinded eye if the work had jumped into the face of the student.

How to Use a Vise (Cont.)

Fig. 12. Good vises have removable jaws. Regular inspection and replacement saves time and prevents accidents.



Most vise mortalities are caused by lack of lubrication. It is a good plan to have a regular day each month for oiling your vise screws, just as you do for replenishing oil in line shaft hanger bearings. Then you will have smooth, easy working vises which not only will last much longer and reduce the overhead, but will save the operator's time.

Regular jaw inspection is also a money saving feature which can be adopted to advantage. The duty of a vise is to hold work and where jaws wear smooth the vise cannot perform this function effectively.

How to Choose a Vise

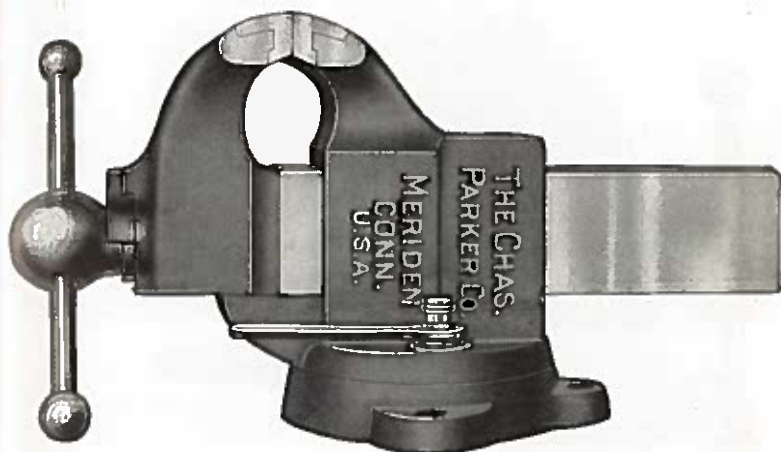
It would seem to the student in glancing through a catalog of Machinist's Vises, that there were a great many types but a careful analysis of these types shows that each was developed to do a particular kind of work. The most essential thing in the choice of any vise is to be sure that *the vise is large enough for the job*. By large enough we really mean, heavy enough, as weight is a most essential quality in the choice of the proper vise. This is easily explained. *The greater the weight of the vise the greater its inertia and rigidity*. It will hold the work firmly and will prevent the work from slipping or chattering.

Attention should be called to the difference between STATIONARY and SWIVEL base vises. Bear in mind that on good vises the rigidity of the vise is the same whether it is of the STATIONARY or SWIVEL base type. A STATIONARY base vise (see illustration on Page 14) is bolted to the bench and cannot be moved, while the base only of a SWIVEL base vise (see illustration on Page 13) is bolted to the bench allowing the operator to change the position of the vise.

The following paragraphs give a brief description of nine different types of Bench Vises and the reasons they are used. These vises cover practically every field which demands the services of a vise.

No. 1 Machinist's Vises

Made for general factory work. This vise is made with either a stationary or swivel base, depending upon the requirements of the workman.



STATIONARY BASE

No.	Weight Lbs.	Jaw In.	Vise Opens
29X	33	3¼	4
39X	52	3½	6
49X	72	4¼	7
59X	90	4¾	8
69X	129	5¼	9
79X	159	6¼	9½
79½X	194	7	10½
60X	297	8	13½

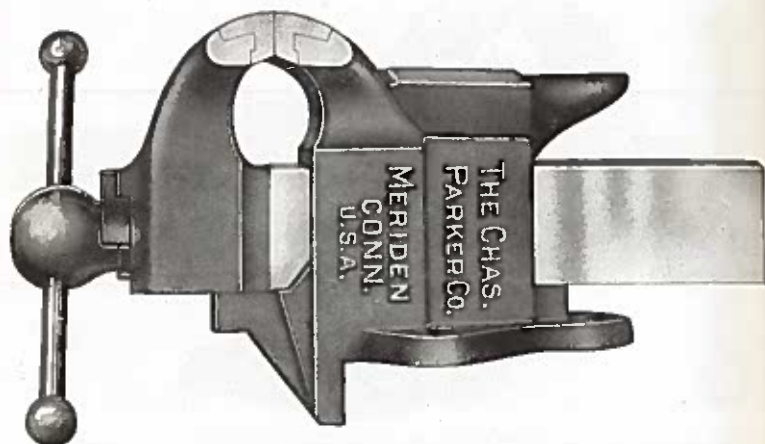
SWIVEL BASE

No.	Weight Lbs.	Jaw In.	Vise Opens
229X	39	3¼	4
239X	61	3½	6
249X	85	4¼	7
259X	103	4¾	8
269X	151	5¼	9
279X	187	6¼	9½
279½X	228	7	10½
260X	351	8	13½

Because of the desirability of having the maximum amount of weight per inch of jaw width, The Parker Company has developed their Superior series, an illustration of which is shown in the above picture. This type vise is especially heavy and rugged and makes an excellent tool for any Vocational School.

No. 2 Automotive Vises

Made expressly for the heavier service required by Automotive work.



STATIONARY BASE

No.	Weight Lbs.	Jaw In.	Vise Opens
134	76	4	5½
135	102	5	6

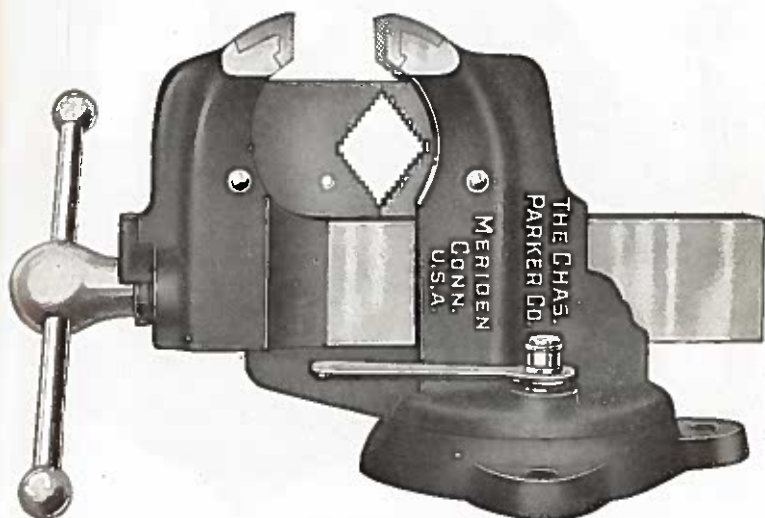
SWIVEL BASE

No.	Weight Lbs.	Jaw In.	Vise Opens
234	89	4	5½
235	112	5	6

Made overweight and oversize with a heavy anvil for cutting, pounding and shaping up metal pieces.

These vises are ideal for the ordinary rough and ready work that must be done by the automotive mechanic.

No. 3 Combination Pipe Vises

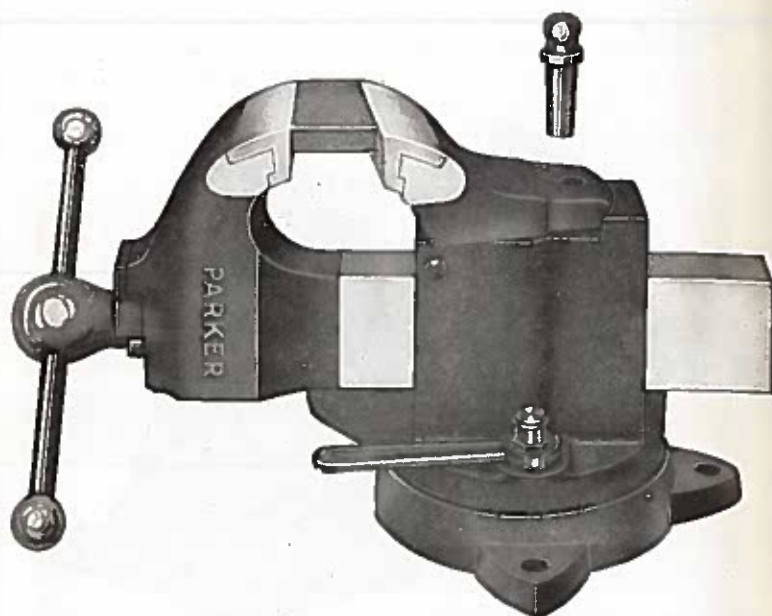


SWIVEL BASE

No.	Weight Lbs.	Jaw In.	Vise Opens	Holds Pipe Up to
87	47	3½	3	2
88	74	4½	5	3
288½	116	5	6	4
289½	185	6	9½	6

These vises are used either for holding metal parts or for holding pipe, and are practically indispensable to any well equipped plumbing shop. Both the pipe jaws are removable and the front pipe jaw is reversible as both ends are toothed.

No. 4 Top Swivel Jaw Vises

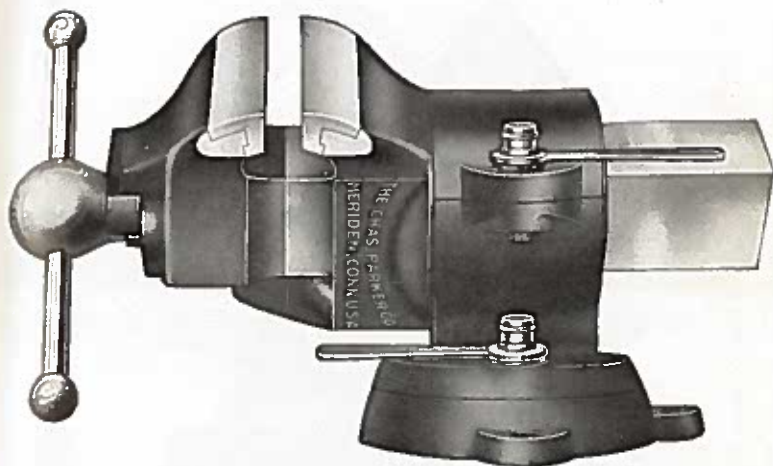


SWIVEL BASE

No.	Weight Lbs.	Jaw In.	Vise Opens
270	33	3	3½
271	51	3½	5
271¼	52	4	5
272	71	4½	6
273	85	5	7
274	123	5½	9
275	174	6	9½
240	220	7	11

Made both in the stationary and swivel base types, these vises are adaptable for shops where tapered shaped pieces are to be held. They are, by nature of their construction, more delicate than the ordinary Machinist's vise and will not withstand the excess strains to which the other vises are often subjected. They are a particular vise for a particular job.

No. 5 Toolmaker's Vises

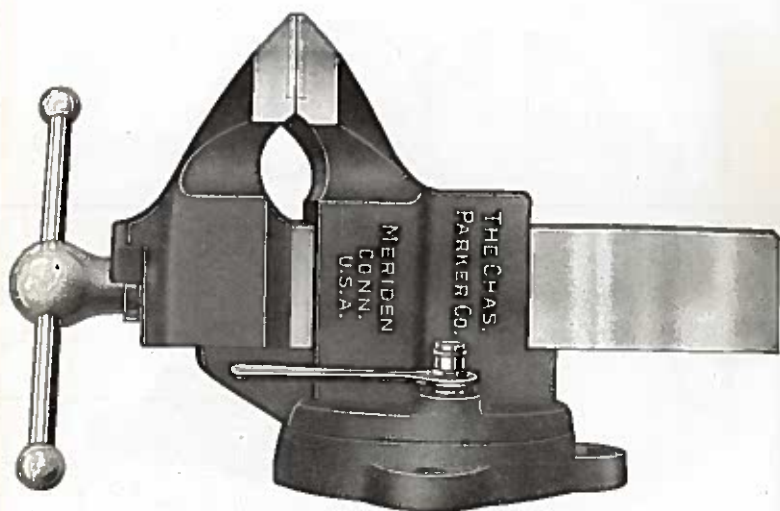


SWIVEL BASE

No.	Weight Lbs.	Jaw In.	Vise Opens
429	53	3½	3½
439	67	4	6
449	87	4½	7½

The double swivel vise shown in this picture has been developed primarily for work in tool-rooms and metal pattern shops. The swivels operate independently of each other, allowing the jaws to be swung in any position without removing the work from them. These vises are carefully made tools and are particularly advantageous where exacting and careful work is demanded.

No. 6 Woodworker's Vises



No. 276 is a Top Swivel Jaw Vise

SWIVEL BASE

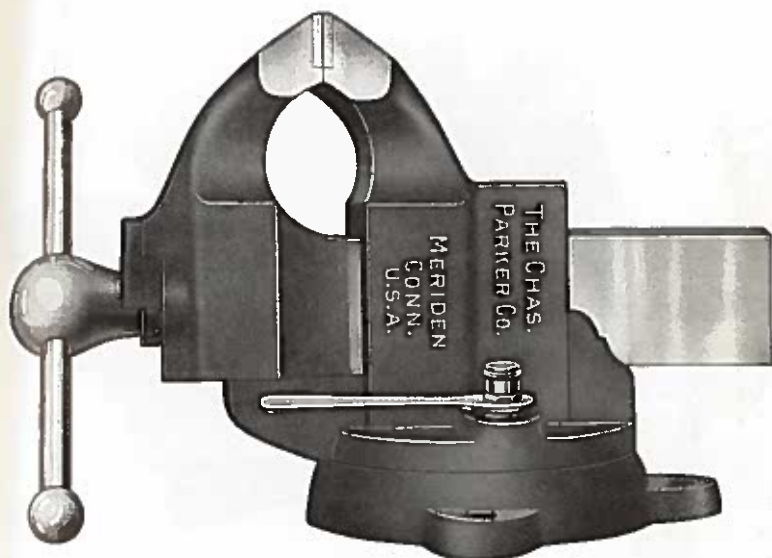
No.	Weight Lbs.	Jaw In.	Vise Opens	Depth Face In.
246	77	4½	7	2¼
276	53	4	7	2¼

STATIONARY BASE

146	64	4½	7	2¼
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The jaws on these vises are deep and flat and are without serration. This type vise is most suitable for holding pieces of wood. Very handy for any wood pattern shop.

No. 7 Filer's Vises



No. 278 is a Top Swivel Jaw Vise

SWIVEL BASE

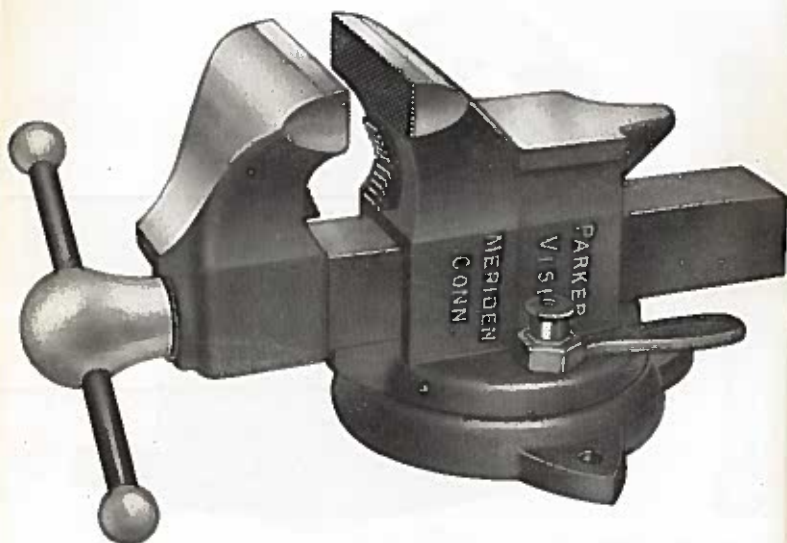
No.	Weight Lbs.	Jaw In.	Vise Opens
44	44	4	3
278	52	4	5½

STATIONARY BASE

42	35	4	3
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Designed for shops where a great deal of filing is done, these vises are built high and narrow with large opening and depth, and are very suitable for shops where fine and accurate filing must be done. The high thin jaws give a complete view of the work and allow the work to be filed from almost any position.

No. 8 General Utility Vises

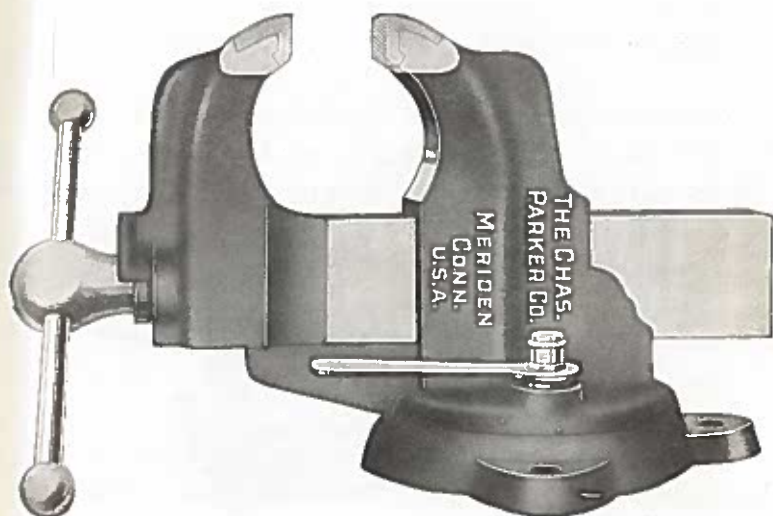


SWIVEL BASE

No.	Weight Lbs.	Jaw In.	Vise Opens
123½	18	3½	4

The Oriole vise has been developed for doing such jobs as wrought iron work, electric and lamp assembly, storage battery service, radio station or general household work. This combines the anvil features of the Automotive vise, the removable pipe jaw feature of the Combination Pipe vise, and all in all is a rugged, small vise for general work of all kinds. It is a low-priced, indispensable tool.

No. 9 Aviation Vises

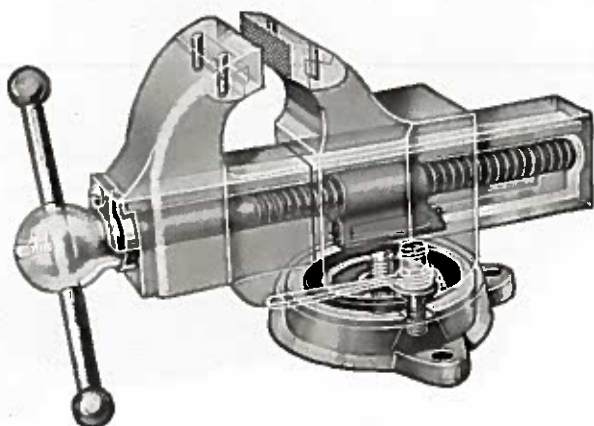


SWIVEL BASE

No.	Weight Lbs.	Jaw In.	Vise Opens	Jaw Depth
294 $\frac{1}{2}$	70	4 $\frac{1}{2}$	5	3 $\frac{3}{4}$
295	113	5	6	5 $\frac{1}{4}$
296	177	6	9 $\frac{1}{2}$	6 $\frac{1}{2}$

Designed expressly for the Aviation Industry. This vise is very heavy, extremely rigid and has great depth of jaw. These combined features make it possible to solidly and rigidly hold the various cumbersome pieces that are used in the Aviation Industry.

Construction of Vises



Phantom View

In the past years a Bench Vise was just a vise, but with the rapid engineering development of the past few decades, great improvements have been made in the strength, rigidity and holding power of Parker Vises. There are five essential considerations in choosing a vise.

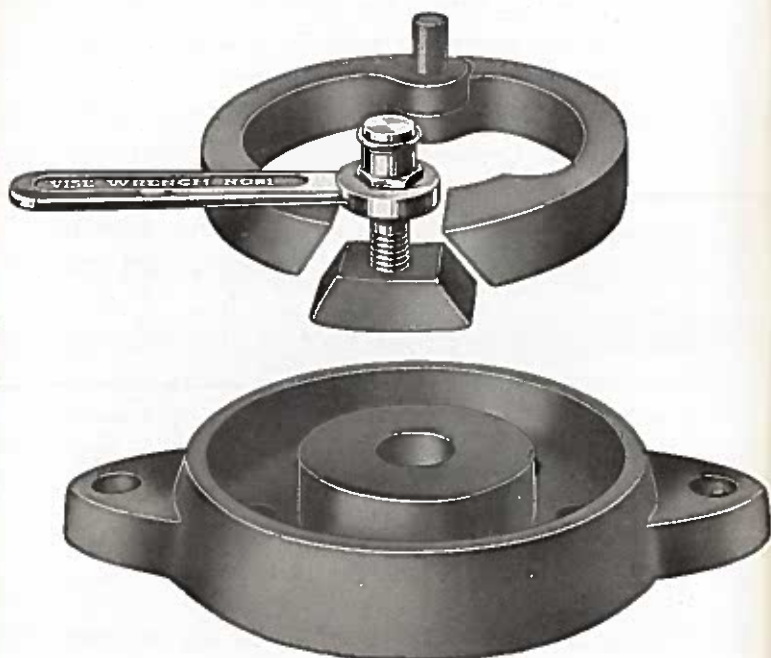
No. 1 Castings

Vises are made of malleable and gray iron. We believe that cast iron is the most suitable material for a vise for several reasons. It is a known fact that cast iron does not spring out of shape easily, but tends to remain solid and rigid right up to the elastic limit. Consequently, although a cast iron vise, if unduly strained may break, it will never bend out of shape and will always remain true in all its parts. Furthermore, due to the fact that cast iron is less expensive, it is possible to get a great deal of weight in a vise made of gray iron and hence obtain greater rigidity and inertia. Recent developments in the foundry industry have made it possible to obtain very strong gray iron castings due to the fact that the mixing of the iron is all done by careful weighing and analysis of the component materials used in the melting cupola.

Each day test-bars are taken in the foundry which are tested for chemical analysis and also for tensile strength and shearing strength. By means of these test-bars, a very close and immediate check is kept on the foundry and uniformly strong vises are the result. At periodic intervals, actual vises are set up and overstrained.

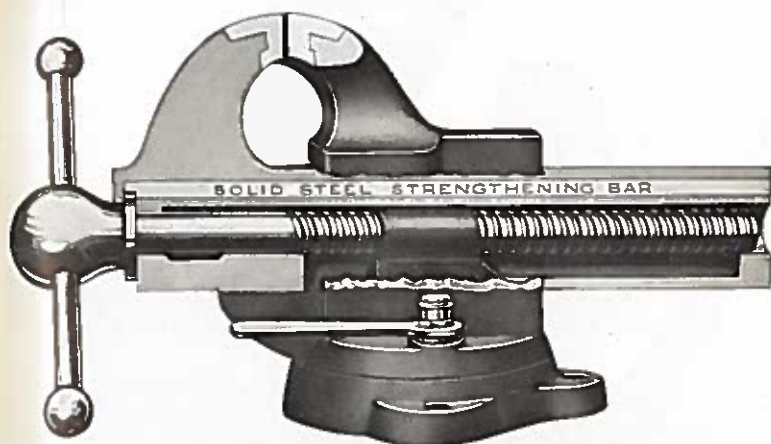
In order to be sure that the vises are exactly as they should be, pressure gauges are placed between the jaws which are then tightened up and the pressures that the vise withstands are recorded.

No. 2 Swivel Base



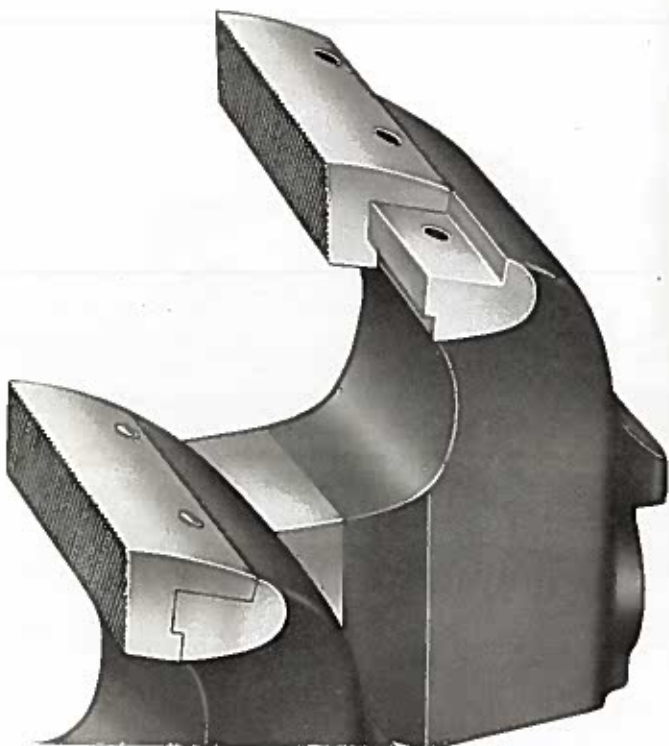
There are several types of swivel bases both of the clamp type and the locking type. The Parker principle is simple but effective. The tightening of the wrench pulls the wedge into place in a split ring and forces the ring against all sides of the base, giving a gripping power on 360 degrees of surface. The hexagon wrench allows wrench to be placed in any position convenient to user.

No. 3 Slide



Due to the fact that the Parker vise screw is held by a saddle on the outside of the vise, the under-portion of the sliding jaw is absolutely solid, giving strength where strength is needed. In our Superior series a solid steel bar is cast into the slide the full length. This tends to keep the vise slide from reaching its elastic limit as quickly as without the steel bar, and thus greatly increases the strain resisting qualities of the vise.

No. 4 Steel Jaws



The working jaws of all bench vises are protected by steel jaws. These are either cast on, screwed on or pinned on. Cast on jaws are rigid but not renewable, screwed on jaws are renewable but not rigid. Pinned on jaws of the shape used on Parker Vises are renewable, will not work loose and cover the entire top of the jaws with tool steel, thus greatly increasing the life of the vise. When, after many years of service, these steel jaws are worn, they may be easily replaced, which gives the worker practically a new vise.

No. 5 Special Features

Other special Parker features include the tension spring which holds the handle wherever it is placed so that no student should ever have a handle drop and pinch his fingers.



The fact that the screw on the Parker Vise is held in place by an outside saddle makes it very easy to take the vise apart to oil the screw. This will greatly increase the life of the vise.



For doing work where it is essential that no marks be left on the piece, brass, copper and lead caps can be obtained. These caps fit directly over the jaws of the vise, completely protecting the work that is being held.

